

REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application.

Claims 12-13, 15-35 and 37-43 are now pending in this application.

Claims 12, 21 and 37 are independent. Claims 14, 36 and 44-48 have been cancelled. Claims 12-13, 26, 29-31 and 37 have been amended.

Reconsideration of this application, as amended, is respectfully requested.

REJECTIONS UNDER 35 U.S.C. §112

Claims 12-28 and 29-36 stand rejected under 35 U.S.C. §112, first paragraph. This rejection is respectively traversed.

Claim 12

Regarding claim 12, the Examiner takes issue with the phrase "wherein an outer profile of said first stator core protrudes outwardly away from said rotation shaft as said outer profile progresses toward said first end of said first stator." The Examiner makes references to Applicants' specification on page 10, lines 23-25, which state "the first rotor receiving part 33a and the second rotor receiving part 36a are protruded outwardly near the first and second separate spaces 33d and 36e along with the radial direction." The Examiner asserts that based upon this quotation, the phrase "the outer profile," as

recited in claim 12, can be interpreted to mean "a circular edge that face the rotor or the square edge around the stator."

Applicants respectfully disagree. The recitation found on page 10, lines 23-25 is not referring to the circular edge that faces the rotor. If it were, the paragraph found on page 11, lines 11-14 would be redundant. Therein, the specification states "a pair of detent parts 33e and 36f having larger radius than the radius from the rotation shaft 13 to the first and second rotor receiving parts 33a and 33e are formed on the first and second rotor receiving parts 33a and 36a in rotating direction of the rotor 11." This is the portion of the specification which first introduces that the inner profile protrudes outwardly in the radial direction. The paragraph in lines 23-25 of page 10 is making reference to Fig. 10 which illustrates that the receiving parts 33a and 36a are protruded outwardly. This arrangement is clearly illustrated in Applicants' Fig. 10 as originally filed. Moreover, to provide clear written support in the specification, Applicants' have amended the specification to parallel the language used in claim 12. The amendments to the specification as well as claim 12 were clearly illustrated in Fig. 10 as originally filed.

Claim 29

Regarding claim 29, the Examiner takes issues with the phrase "wherein one end of the first rotor receiving part near the first gap and an opposite end

of the second rotor receiving part near the second gap are positioned on a vertical center line of the first and second stator cores and rotational shaft."

Again, Applicants are amending the specification to provide antecedent basis for this claim language. Again, Applicants direct the Examiner's attention to Fig. 10, as originally filed, which clearly illustrates the vertical center line Lv, and the arrangement as set forth in claim 21.

Claims 30 and 36

Claim 36 has been cancelled. Therefore, its rejection under 35 U.S.C. § 112, first paragraph, has been rendered moot.

Independent claim 30 has been amended so as to more closely correspond to the Examiner's proposed interpretation of its limitations. Specifically, the claim now recites nonconductive separation members.

Accordingly, reconsideration and withdrawal of this rejection are respectively requested.

REJECTIONS UNDER 35 U.S.C. §102 and §103

Claims 12 and 15-22 stand rejected under 35 U.S.C. §102, as being anticipated by Ackermann et al. Claims 23-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ackermann et al. Claims 25 and 44-45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ackermann et al. in view of Jeske. Claim 26 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ackermann et al. in view of McKinnon et al. Claim 27

stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ackermann et al. in view of McKinnon et al. and further in view of Hayashi. Claims 13-14 and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ackermann et al. in view of Erdman et al. Claims 30-31 and 37-38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi in view of McKinnon et al. Claim 32 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi in view of Jeske. Claims 33-34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi in view of Erdman et al. Claims 35-36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi in view of Ackermann et al. Claim 39 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi and McKinnon et al. and further in view of Jeske. Claims 40-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi in view of McKinnon et al. and further in view of Erdman et al. Claim 43 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi in view of McKinnon et al. and further in view of Ackermann et al. Claims 46-48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi in view of Jeske and further in view of Erdman et al. All these rejections are respectfully traversed.

Ackermann et al. does not show each and every element of independent claim 12. Claim 12 recites a combination of structural features "wherein outer profiles of said first stator core and the second stator core near the first

separate space or the second separate space, protruding outwardly away from said rotational shaft as said outer profiles progress toward the end of the first stator core or the second stator core."

The Examiner asserts that Ackermann et al. disclose a skeleton type brushless motor "wherein an outer profile of said first stator core protrudes outwardly away from said rotational shaft as said outer profiles progress toward the end of the first stator core or the second stator core." Such an interpretation is only possible if one adopts the Examiner's interpretation of "outer profile," as asserted by the Examiner in the § 112, first paragraph rejection. As argued above, such an interpretation should not be given to the term "outer profile."

Ackermann et al. clearly illustrate in Fig. 2 that the outer profile of the stator core does not protrude outwardly away from either of the separate spaces 30 and 30b. Fig. 12 shows that the inner profile 26a₂ or 27a₂ perhaps protrudes outwardly away from the rotational shaft 4 near the first or second separate spaces 30, 30b. There is simply no showing or suggestion in Ackermann et al. that the outer profiles of the first stator core and the second stator core protrude outwardly, as set forth in Applicants' independent claim 12.

The arrangement, as recited in claim 12, has advantages over the prior art of record in that the claimed invention provides a structure of a skeleton type brushless motor, in which the output of the motor can be increased by

forming the protruded parts near the first or second separate spaces, without increasing the entire stator. This advantage was detailed in the specification, as originally filed.

The prior art of record fails to cure the deficiencies of Ackermann, as discussed above. Therefore, claim 12 and its dependent claims should be in condition for allowance.

Regarding claims 29, Hayashi fails to show each and every element of the claim. Claim 29 recites a combination of structural features "wherein one end of the first rotor receiving part near the first separate space and an opposite end of the second rotor receiving part near the second separate space are positioned on a vertical center line of the first and second stator cores and rotational shaft." This arrangement was illustrated in Applicants' Fig. 10, as originally filed.

The Examiner has essentially broaden this recitation of the claim in his interpretation so that the ends of the first and second rotor receiving parts no longer need to be "positioned on a vertical center line." According to the Examiner, the claim more broadly recites that they "face each other along a vertical center line."

It is the Examiner's broader interpretation of the claim which allows the Examiner to reject this claim under 35 U.S.C. § 102(b) as being anticipated by Hayashi. The Examiner's interpretation is incorrect. The Examiner should

refer to the language of Applicants' claims when interpreting the claims and applying the prior art of record.

Hayashi fails to show or suggest an arrangement as set forth in Applicants' independent claim 29. In Hayashi, the opposed end surfaces of the semicircular portions 15a and 16a are spaced by predetermined distances a and b, making reference to Fig. 2. Therefore, the opposed end surfaces are spaced by distances $a/2$ and $b/2$ from a vertical center line. The opposed end surfaces are not on a vertical center line, as claimed. The offset nature of the separate spaces, as implied by Applicants' independent claim 21, enhances the drivability, particularly the initial or starting drivability, of the rotor. The device of Hayashi would not have this advantage. Moreover, the prior art of record fails to cure the deficiencies of Hayashi.

Regarding claim 30, the Examiner asserts that Hayashi shows all the limitations of the claimed invention except numerous elements of the motor. For the numerous elements of the motor, the Examiner resorts to the teaching reference of McKinnon et al.

It is respectfully submitted that the combination of Hayashi in view of McKinnon et al. fails to show or suggest "a pair of nonconductive separation members each separation member respectively being inserted between the stator cores and one of the shaft support parts and receiving a part of the rotor protruded from the stator core."

The Examiner has regarded the grommet receiving member 34 in McKinnon et al. as corresponding to the shaft support member of the claimed invention. Further, the Examiner has interpreted the bracket members 26 as corresponding to the first or second separation members of the claimed invention.

It is respectfully submitted that the element in McKinnon et al. which corresponds to the claimed shaft support member is bearing number 32, as shown in Fig. 4. McKinnon describes the bearing member at column 3, lines 9-21. The grommet receiving member 34 of McKinnon et al. is an additional element which does not support the rotational shaft, as can be seen from Figs. 3 and 4, as well as their corresponding descriptions.

As such, McKinnon et al. fail to cure the deficiencies of Hayashi, in that McKinnon et al. fail to show at least the element corresponding to the claimed shaft support member. Moreover, the prior art of record fails to cure the deficiencies of Hayashi.

The dependent claims of record should be allowable due to their dependence upon the above discussed independent claims, as well as for the additional limitations as recited therein.

For the reasons as stated above, reconsideration and withdrawal of these rejections are respectfully requested.

CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the Office Action, and as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Mr. Scott L. Lowe (Reg. No. 41,458) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Applicant(s) respectfully petitions under the provisions of 37 C.F.R. § 1.136(a) and 1.17 for a one month extension of time in which to respond to the Examiner's Office Action. The Extension of Time Fee in the amount of \$110.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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Enclosure: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification

The following paragraph was inserted after the paragraph on page 10, beginning on line 23:

--In other words, outer profiles of the first stator core 32 and the second stator core 35 near the first and the second separate spaces 33d and 36e, protrude outwardly away from the rotational shaft 13 as the outer profiles respectively progress toward each end of the first and the second stator cores 32, 35.--

The following paragraph was inserted after the paragraph on page 11, beginning on line 4:

--In particular, one end of the first rotor receiving part 33a near the first separate space 33d and an opposite end of the second rotor receiving part 36a near the second separate space 36e are positioned on a vertical center line Lv of the first and second stator cores 32, 35 and rotational shaft 13.--

The paragraph on page 13, being on line 16 was replaced with the following paragraph:

--Meanwhile, the first and second [separate] separation members 26 and 29 prevent the approach of impurities from outside, and the cover member 28 formed on the first [separate] separation member 26 is disposed outer sides of the first separate space 33d and of the second separate space 36e to prevent the approaches of the impurities to the rotor 11 through the separate spaces 33d and 36e.--

In The Claims

Claims 14, 36 and 44-48 have been cancelled.

The claims have been replaced as follows:

12. (Amended) A skeleton type brushless motor comprising:
a rotor having a rotational shaft in a center thereof;
a first stator core including a first semicircular
inner profile defined between first and second ends of said first stator core;
a second stator core including a second semicircular inner profile defined
between first and second ends of said second stator core, wherein said second
stator core is connected to said first stator core such that said second
semicircular inner profile faces to said first semicircular inner profile and a
first gap exist between said first end of said first stator core and said first end
of said second stator core, and a second gap exists between said second end of
said first stator core and said second end of said second stator core;
a coil winding unit connected to at least one of said first and second
stator cores[,]; and
a coil wound on said coil winding unit,
wherein [an] outer profiles of said first stator core and the second stator
core near the first separate space or the second separate space, protrude[s]
outwardly away from said rotational shaft as said outer profiles progress[es]

toward [said] the end of the first stator core or the second stator core [end of said first stator].

13. (Amended) The motor of claim 12, wherein [an outer profile of the second stator core protrudes outwardly away from said rotational shaft as said outer profile progresses toward said first end of said second stator] outer profiles of said first stator core and the second stator core near both the first separate space and the second separate space, protrude outwardly away from said rotational shaft as said outer profiles progress toward each end of the first stator core and the second stator core.

26. (Amended) The motor of claim 12, further comprising:

- a first shaft support part supporting one end of said rotational shaft;
- a first nonconductive separation member located between said first shaft support part and said first and second stator cores for receiving a part of the rotor protruded from the stator cores;
- a second shaft support part supporting another end of said rotational shaft; and
- a second nonconductive separation member located between said second shaft support part and said first and second stator cores for receiving a part of the rotor protruded from the stator cores.

29. (Amended) A skeleton type brushless motor comprising:

a rotor having a rotational shaft in a center thereof; [and]

a first stator core having a first rotor receiving part formed therein for receiving the rotor;

a second stator core having a second rotor receiving part formed therein for receiving the rotor;

first and second [gaps] separate spaces formed between the first and second stator cores, respectively;

a coil winding unit connected to the first and second stator cores; and

a coil wound on the coil winding unit;

wherein one end of the first rotor receiving part near the first [gap] separate space and an opposite end of the second rotor receiving part near the second [gap] separate space are positioned on a vertical center line of the first and second stator cores and rotational shaft.

30. (Amended) The motor of claim 29, further comprising:

a pair of nonconductive separation members [for electromagnetically separating a pair of shaft support parts, rotatably supporting the rotational shaft on both sides of the stator cores, from the stator cores,] each separation member respectively being inserted between the stator cores and one of the shaft support parts and receiving a part of the rotor protruded from the stator cores.

31. (Amended) The motor of claim 30, wherein a cover is formed on one of the separation members for covering the first and second [gaps] separat
spaces.

37. (Amended) A skeleton type brushless motor comprising:
a rotor having a rotational shaft in a center thereof;
a first stator core having a first rotor receiving part formed therein for receiving the rotor;
a second stator core having a second rotor receiving part formed therein for receiving the rotor;
first and second gaps formed between the first and second stator cores, respectively;
a coil winding unit connected to the first and second stator cores;
a coil wound on the coil winding unit;
a pair of shaft support parts rotatably supporting the rotational shaft on both sides of the stator cores; and
a pair of nonconductive separation members [for electromagnetically separating the respective shaft support parts from respective ends of the stator cores,] said separation members being inserted between the stator cores and respective ones of the shaft support parts and receiving a part of the rotor protruded from the stator cores.